

Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently Amended) A display device comprising:

a substrate;

a plurality of parallel source lines and a plurality of parallel gate lines formed over said substrate, said source line and gate lines being arranged relative to one another to form a matrix of pixel regions over said substrate with each of said pixel regions bounded by two adjacent source lines and two adjacent gate lines;

a plurality of thin film transistors formed over said substrate, with at least one thin film transistor disposed at each intersection of said source lines and gate lines such that at least one thin film transistor is located in each of said pixel regions;

a first interlayer insulating film formed over said thin film transistors;

a black matrix comprising a light shielding layer formed over said first interlayer insulating film, said light shielding layer being disposed to cover at least said gate lines;

a conductive layer formed on a same layer as said black matrix;

a second interlayer insulating film formed over said light shielding layer and said conductive layer; and

a pixel electrode disposed in each of said pixel regions over said second interlayer insulating film and electrically connected to one of said thin film transistors through at least said conductive layer, wherein a periphery of said pixel electrode overlaps with said light shielding layer and at least one of said source lines.

2. (Original) A display device according to claim 1 wherein said second interlayer insulating film is interposed between said pixel electrode and said first interlayer insulating film and prevents any direct electrical contact therebetween.

3. (Previously Presented) A display device according to claim 1 wherein said second interlayer insulating film has a flat upper surface over said light shielding layer.

4. (Previously Presented) A display device according to claim 1 further comprising an insulating film comprising silicon oxide formed over said substrate.

5. (Original) A display device according to claim 1 wherein said pixel electrode is transparent.

6. (Original) A display device according to claim 1 wherein said light shielding layer comprises chromium.

7. (Original) A display device according to claim 1 wherein said light shielding layer comprises titanium.

8. (Currently Amended) A display device comprising:
a substrate;
a plurality of parallel source lines and a plurality of parallel gate lines formed over said substrate, said source lines and gate lines being arranged relative to one another to form a matrix of pixel regions over said substrate;
a plurality of thin film transistors formed over said substrate, with at least one thin film transistor disposed at each intersection of said source lines and gate lines such that at least one thin film transistor is located in each of said pixel regions;
a first interlayer insulating film formed over said thin film transistors;

a light shielding conductive layer formed over said first interlayer insulating film, said light shielding conductive layer being disposed to cover said gate lines;

a second conductive layer formed on a same layer as said light shielding conductive layer;

a second insulating film formed over said light shielding conductive layer and said second conductive layer; and

a pixel electrode disposed in each of said pixel regions over said second insulating film and electrically connected to one of said thin film transistors through at least said second conductive layer, wherein a periphery of said pixel electrode overlaps with said light shielding conductive layer,

wherein a periphery of said pixel electrode is overlapped with a corresponding one of said source lines.

9. (Original) A display device according to claim 8 wherein said thin film transistors have a top-gate structure.

10. (Original) display device according to claim 8 wherein said pixel electrode is transparent.

11. (Original) A display device according to claim 8 wherein said light shielding conductive layer constitutes a black matrix.

12. (Currently Amended) A display device comprising:
a substrate;
a plurality of gate lines and a plurality of source lines formed over said substrate;
a plurality of pixel regions defined by said gate lines and said source lines;
a plurality of thin film transistors formed over said substrate, with at least one thin film transistor being disposed in each of said pixel regions;

a first insulating layer formed over said thin film transistors;
a light shielding conductive layer formed over said first insulating layer, said light shielding conductive layer being disposed to cover at least said gate lines;
a second conductive layer formed on a same layer as said light shielding conductive layer;
a second insulating layer formed over said light shielding conductive layer and said second conductive layer;
a pixel electrode formed over the second insulating layer in each of said pixel regions and electrically connected to one of said thin film transistors through at least said second conductive layer,
wherein said pixel electrode is overlapped with said light shielding conductive layer with said second insulating layer interposed therebetween, and a periphery of said pixel electrode being is overlapped with the source lines and the gate lines which define the corresponding pixel region, ~~and said light shielding conductive layer extends between said pixel electrode said gate lines.~~

13. (Original) A display device according to claim 12 wherein said thin film transistors have a top-gate structure.

14. (Original) A display device according to claim 12 wherein said pixel electrode is transparent.

15. (Original) A display device according to claim 12 wherein said light shielding conductive layer constitutes a black matrix.

16. (Currently Amended) A display device comprising:
a substrate;

a plurality of parallel source lines and a plurality of parallel gate lines formed over said substrate, [[and]] said source lines and gate lines being arranged relative to one another to form a matrix of pixel regions over said substrate;

a plurality of thin film transistors formed over said substrate, with at least one thin film transistor disposed at each intersection of said source lines and gate lines such that at least one thin film transistor is located in each of said pixel regions;

a first interlayer insulating film formed over said thin film transistors;

a light shielding conductive layer formed over said first interlayer insulating film, said light shielding conductive layer being disposed to cover said gate lines;

a second conductive layer formed on a same layer as said light shielding conductive layer;

a second insulating film formed on said light shielding conductive layer and said second conductive layer;

a pixel electrode disposed in each of said pixel regions on said second insulating film and electrically connected to one of said thin film transistors through at least said second conductive layer, wherein a periphery of said pixel electrode overlaps with said light shielding conductive layer and at least one of said source lines,

wherein a periphery of said pixel electrode is overlapped with corresponding ones of gate lines and said light shielding conductive layer extends in an overlapped portion between the pixel electrode and one of the gate lines.

17. (Original) A display device according to claim 16 wherein said thin film transistors have a top-gate structure.

18. (Original) A display device according to claim 16 wherein said pixel electrode is transparent.

19. (Original) A display device according to claim 16 wherein said light shielding conductive layer constitutes a black matrix.

20. (Currently Amended) A display device comprising:
a substrate;
a plurality of gate lines and a plurality of source lines formed over said substrate;
a plurality of pixel regions defined by said gate lines and said source lines;
a plurality of thin film transistors formed over said substrate, with at least one thin film transistor being disposed in each of said pixel regions;
a first interlayer insulating film formed over said thin film transistors;
a light shielding conductive layer formed over said first insulating layer, said light shielding conductive layer being disposed to cover said gate lines;
a second conductive layer formed on a same layer as said light shielding conductive layer;
a second interlayer insulating film formed over said light shielding conductive layer and said second conductive layer; and
a pixel electrode formed over the second insulating layer in each of said pixel regions and electrically connected with said second conductive layer; [[and]]
wherein said pixel electrode is overlapped with said light shielding conductive layer with said second insulating layer interposed therebetween, and a periphery of said pixel electrode is overlapped with the source lines and the gate lines which define the corresponding pixel regions.

21. (Original) A display device according to claim 20 wherein said thin film transistors have a top-gate structure.

22. (Original) A display device according to claim 20 wherein said pixel electrode is transparent.

23. (Original) A display device according to claim 20 wherein said light shielding conductive layer constitutes a black matrix.

24. (Previously Presented) A display device according to claim 1 further comprising a counter electrode in electrical communication with said light shielding layer, wherein said light shielding layer is electrically connected to a same potential as said counter electrode.

25. (Previously Presented) A display device according to claim 20 further comprising a counter electrode in electrical communication with said light shielding layer, wherein said light shielding layer is electrically connected to a same potential as said counter electrode.